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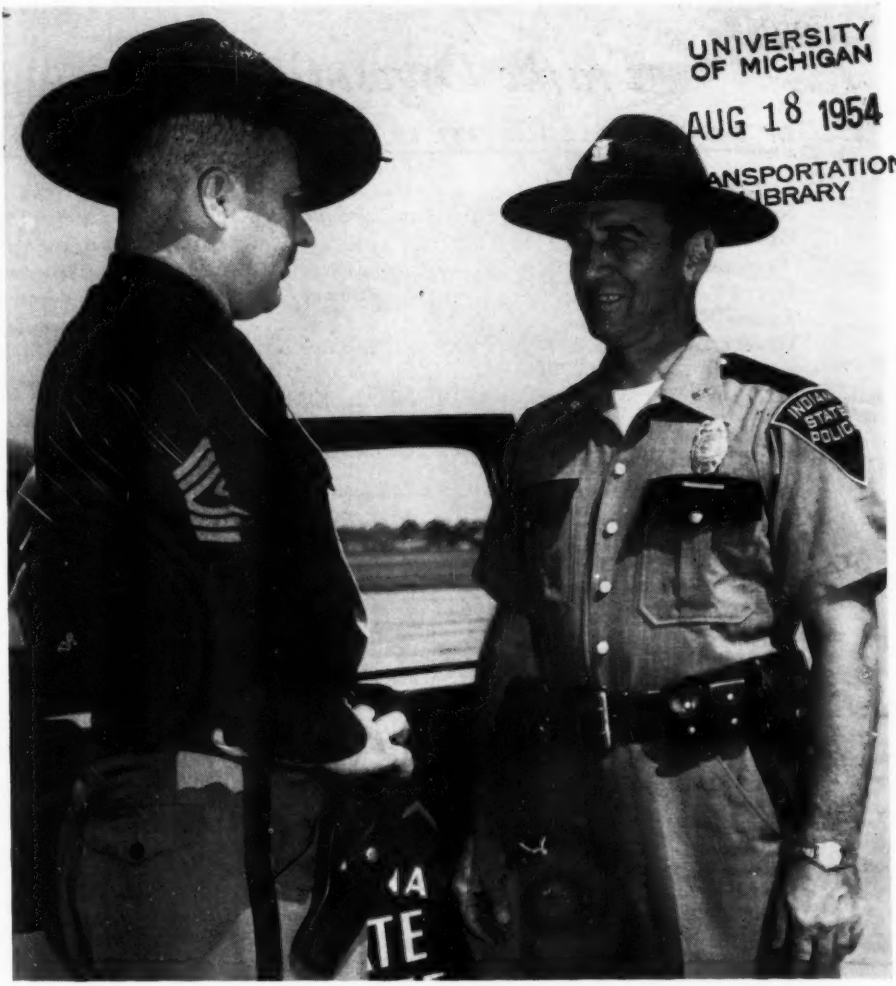

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Air-Conditioned Shirts

Indiana State Police troopers are beating the heat with new short-sleeved, open collared uniform shirts as summertime replacements. First Sgt. Victor Waller (left), wearing the winter garment, is shown inspecting the summer garb worn by Trooper Gale Kessen. *(Indiana State Police Photo)*

TRAFFIC DIGEST & Review

THE TRAFFIC INSTITUTE · NORTHWESTERN UNIVERSITY

The

Traffic Digest & Review

OF THE TRAFFIC INSTITUTE, NORTHWESTERN UNIVERSITY

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This publication is produced to serve as a source of information and a medium for the expression of responsible opinion in the street and highway traffic field. From time to time there will appear herein expressions of opinion that do not necessarily reflect official Traffic Institute policy.

In This Issue

REQUIREMENTS OF A POLICE OFFICER, *by K. C. Wu* 1
ALCOHOL AND ACCIDENTS 2
NAME 1954-55 TPA CLASS 8
WANT TO IMPROVE TEEN-AGE DRIVING? *by Forest R. Noffsinger* 10
KNOW THE LAW 16
SAVE 1,000 LIVES IN FIRST SIX MONTHS! . . . 20
EXPERT AND TECHNICAL HELP IN TRAFFIC ACCIDENT INVESTIGATION 23
CHEMICAL TESTS COME OF AGE 37
TRAINING CALENDAR 38

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Requirements of a Police Officer

by
Dr. K. C. Wu
Former Governor of Formosa

(Dr. Wu, now residing in Evanston, Ill., was the principal speaker at the pre-graduation dinner for the Traffic Institute's 1953-54 Traffic Police Administration Class. His remarks were so favorably received that he was asked to write this brief article on the same subject.)

A police officer in a democracy, must possess four requirements. First, he must be *as firm as a king*. It is his duty to enforce the law, and he should see to it that the law is strictly enforced to the literal word. Just as a king cannot afford to show hesitation and indecision, so a police officer must not waver in carrying out his duties. Just as a king will not jeopardize his own position by showing any favoritism, so a police officer must treat every one and all under his jurisdiction as equals.

Second, he must be *as instructive as a teacher*. More often than not, laws and regulations are violated not through intent but through ignorance by the people. In order to have the law observed, it is essential that it must be widely disseminated. And it is imperative that the law-enforcement officer should know everything about the law which he is to enforce, and impart his knowledge whenever he can.

Third, he must be *as loving as a father*. To be a king or a teacher is not difficult. Human beings always take delight in setting themselves above others. But a police officer in a democracy must be more than that. He must have a genuine love for the people whom he serves. Just as a father is reluctant to spank his children, so a wise police officer is he who can enforce the law without resorting to punishment. Just as the father spanks his errant child, not without a twinge of heart and only for the latter's good, so the police officer must realize that punishment can be given only with regret and not out of a desire to impose authority.

And fourth, he must be *as helpful as a friend*. Any one who is in an authoritative position is always more capable of giving help than the one who is not. Where help is least expected, when given, it is all the more appreciated. If a police officer takes on such a quality as that of a helpful friend, he will be the most respected and beloved member of his area.

The first two requirements are more or less functional qualifications. The second two requirements are the real human factors involved. One may find the first two requirements not wanting even in officers of the Gestapo or the MVD. But it is the possession of the additional second two requirements that raises the police officer in a democracy far above his counterpart in a totalitarian tyranny.

Quantitative Studies of the Relation Between

Alcohol and Accidents

(From a study made by G. H. W. Lucas, W. Kalow, J. D. McColl, B. A. Griffith, and H. Ward Smith, University of Toronto, and presented recently before the National Academy of Sciences, National Research Council, Washington, D. C.)

IT IS A generally accepted fact that ingested alcohol may so affect the brain of a motor car operator as to impair his ability to drive safely. Few of us would feel safe if driven about in present-day traffic by a driver obviously intoxidated.

Since the motor car accident rate, attended with great loss of life and property, has increased alarmingly in various countries of the world with the greater use of motor vehicles, it has become essential to inaugurate world-wide investigations on the influence of some factors contributing to motor car accidents.

The University of Toronto has encouraged researches in this field for years; recently generous grants have been made to the Department of Pharmacology by the Dominion and Provincial Governments in support of extensive studies. The Attorney-General's Department of the Province of Ontario and the Police Department of the City of Toronto, through their collaboration, have made the present investigation possible.

At the First International Conference on Alcohol and Road Traffic held in Stockholm, August, 1950, Dr. H. Ward Smith and R. E. Popham discussed the contribution of the alcohol factor in 919 personal injury accidents occurring in Toronto between May and August, 1950. In this paper the total number of points allotted to the factors contributing to motor car accidents was estimated as 10. From data obtained by the police the onus for each accident was placed on the drivers involved by the number of points assigned to each; a 5 to 5 ratio equally distributed the onus while a 0 to 10 or 2 to 8 ratio made it obvious one driver was more responsible than the other. The conclusion made in this report was that the minimum concentration of the alcohol in the blood at which some motor car operators in actual driving situations are significantly affected, lies in the range 0.03 - 0.05 parts per hundred.

This and similar data collected from various investigators studying accident drivers, while extremely useful, present only the accident aspect of the motor car operator situation. It does not in any manner disclose the number of persons driving motor cars under the influence of alcohol who are not involved in traffic accidents; nor has any investigation up to that time or reported since 1950, provided adequate data on the alcohol

concentration in the blood of the non-accident motor car operator for comparison with the concentrations in the blood of accident drivers. It is true that Holcomb[1] conducted a survey in 1938 on non-accident drivers but the data obtained did not allow a statistically valid comparison with his data on drivers involved in accidents. A survey to furnish such useful data should be conducted on accident and non-accident drivers under traffic conditions as much alike as possible. Such a survey was made feasible in Toronto by the authorities previously mentioned. It is our purpose in this communication to discuss this survey, the results obtained, and the conclusions that may be drawn from it.

A year-round checking of the breath of some accident and non-accident motor car operators in the City of Toronto was made from December 1951 until November 1952. Each week from Monday until Saturday, 6:30-10:30 p.m. or later, special traffic police accompanied by a research worker from the Department of Pharmacology in a cruiser, attended as many traffic accidents involving motor cars as possible. For each driver involved in an accident, four or more non-accident drivers passing the scene of the accident in cars of the same vintage at approximately the same time, provided breath samples with the understanding that such samples were for research purposes only. These breath samples and breath samples from the drivers involved in the accident were placed in charge of the research worker from the Department of Pharmacology who recorded pertinent data at the time. Each accident and non-accident motor car operator was asked four pertinent questions and was handed a questionaire to be answered, and returned in the stamped and addressed envelope provided. We are pleased to report that approximately 60 per cent of these questionnaires were returned completely filled out. The drivers of the cars involved in accidents were questioned by the police in a manner similar to that employed in the accident survey by Smith and Popham[2] as mentioned above, so that the score system of 10 points could be employed to determine the relative responsibility of the particular driver.

At this point attention is directed to the containers used for breath samples in this survey. Analysis of breath samples using the Harger Drunkometer, or the Greenberg Alcometer, were attempted in the cruiser at the time of the accident. The extensive time required for 10 analyses, particularly when some samples of breath had little or no alcohol, made it impossible to ask non-accident drivers to remain on the spot. It was necessary to collect breath samples rapidly and to analyze these later. When experimental samples of gas containing alcohol were stored in rubber balloons, the loss of alcohol was so rapid that some other method of storage had to be found. A solution for the problem was apparent when by trial it was established that negligible loss of alcohol took place

[1]Holcomb, R. L., *Journal of the American Medical Association*, Vol. III. P. 1076-1085, 1938.
[2]Smith, H. W., and Popham, R. E.,—C.M.A.J. 65,325

from plastic (polyethylene) balloons in several hours. Plastic balloons were more easily inflated, very fortunately so in some instances. It was thus made possible to collect samples rapidly at the scene of accident under similar conditions from non-accident and accident drivers, to transport them rapidly to the laboratory and to analyze them in the Drunkometer or the Alcometer before any appreciable loss of alcohol occurred; in multiple accidents 30 or more analyses were necessary. However, when the weather was very cold the balloons had to be warmed to room temperature before analytical procedures began. About two litres of breath gases were collected for analysis.

In this study, the blood alcohol concentrations in 433 motor car drivers involved in accidents were compared with the blood alcohol concentrations in 2,015 "non-accident" drivers operating under driver conditions as nearly alike as possible. The arrangement of the study was such that the data allows an estimation, statistically valid, of the hazard associated with various ranges of concentrations of alcohol in the blood of motor car drivers.

The data obtained in this Toronto study, and those of Holcomb in the Evanston study, are set forth in Table 1 for comparison.

TABLE 1

THE ACCIDENT HAZARD ASSOCIATED WITH VARIOUS CONCENTRATIONS OF ALCOHOL

TORONTO STUDY

% Alcohol in Blood	*Accident Drivers*		*Non-accident Drivers*		*Ratio of % Accident to Non-accident Drivers*	*Hazard*
	No.	*% of Group*	*No.*	*% of Group*		
0.0 up to 0.05	328	77.5	1839	91.3	0.85	1.0
0.05 up to 0.10	30	7.1	109	5.4	1.31	1.5
0.10 up to 0.15	17	4.0	39	1.9	2.10	2.5
0.15 and over	48	11.3	28	1.4	8.10	9.7
Totals	425		2015			

EVANSTON STUDY

No alcohol	144	53.4	1538	87.9	0.6	1.0	
Trace up to 0.06	39	14.2	133	7.6	1.9	3.2	1.0
0.07 up to 0.10	28	10.4	56	3.2	3.3	5.5	4.7
0.11 up to 0.14	22	8.2	16	0.94	8.7	14.5	12.4
0.15 and above	37	13.8	7	0.45	33.1	55.0	46.7
Totals	270		1750				

In the Evanston study the hazard of accident is based on a comparison of accident and non-accident drivers with and without alcohol in their blood. In the Toronto study the comparison is based on accident and non-accident drivers with no alcohol and up to 0.05 per cent blood alcohol, and drivers with more than this amount. The last column in

the Evanston study shows the hazard based on a comparison of accident and non-accident drivers with no alcohol and up to 0.06 per cent blood alcohol, and drivers with more than this amount. This calculation enables one to make a more valid comparison with the hazard, as reported in the Toronto study.

Three conclusions on the relationship between the hazard of accident and the ranges of alcohol concentrations in the blood of motor car operators are as follows:

1. The hazard is significant when the blood alcohol concentration is above 0.10 per cent.

2. In the range of 0.10 - 0.15 per cent blood alcohol concentration, the hazard of accident is 2.5 times that when the concentration of alcohol in the blood is less than 0.05 per cent.

3. This hazard of accident when blood alcohol concentrations are above 0.15 per cent is approximately 10.

Some data on the two studies made in Toronto have been treated similarly to estimate the percentage of accidents due to alcohol. In Table 2 pertinent data from the survey by Smith and Popham, treated as shown, reveals that about 9.5 per cent of accidents involving injury to persons, were attributable to alcohol. In Table 3 data of a similar kind in the year-round survey of urban automobile accidents shows that the percentage is approximately the same.

TABLE 2

URBAN AUTOMOBILE ACCIDENTS INVOLVING INJURY TO PERSONS
SMITH AND POPHAM. TORONTO, 1951

Responsibility Score (0-10)	*% Alcohol in Blood from Analysis of Breath* — *Number of Drivers*								*Totals with Alcohol*
	0.00-Trace		*0.01-0.05*		*0.06-0.11*		*0.12+*		
	Obs.	*Exp.*	*Obs.*	*Exp.*	*Obs.*	*Exp.*	*Obs.*	*Exp.*	
8-10 (a)	86	(108)	20	(17)	23	(9.5)	27	(10)	70
3-7	142	(123)	15	(19)	6	(11.0)	8	(12)	
0-2	176	(173)	28	(27)	7	(15.5)	4	(17)	
Totals (b)	404		63		36		39		
a/b	0.21		0.32		0.64		0.70		138

Total number sampled drivers = 428
Percentage of drivers without alcohol highly responsible for accident = 86/404 = 21.4
Expected number highly responsible = 21.4 x 138 = 29.4
Difference is 70 — 29.4 = 40.6
Percent of accidents due to alcohol = 40.6/428 = 9.5

It is interesting to observe the ratio of a/b which increases in much the same order in both tables; this ratio indicates that the ratio of drivers

TABLE 3

URBAN AUTOMOBILE ACCIDENTS
1952

Responsibility Score (0.10)	*Per Cent Alcohol in Blood from Analysis of Breath*						
	0.00-0.05		*0.05+-0.10*		*0.10+*		
	Number of Drivers						*Totals with Alcohol*
	Obs.	*Exp.*	*Obs.*	*Exp.*	*Obs.*	*Exp.*	
10 (a)	40	(53.0)	4	(4.3)	24	(10.7)	28
3-7	105	(103.8)	9	(8.4)	19	(20.8)	
0	89	(77.2)	6	(6.3)	4	(15.5)	
Totals (b)	234		19		47		66
a/b	0.17		0.21		0.51		

Number of accidents considered = 213
Percentage of drivers without alcohol highly responsible for accidents = 40/234 = 17.0
Expected number highly responsible = 17.0 x 66 = 11.3
Difference is 28 — 11.3 = 16.7
Percent of accidents due to alcohol = 16.7/213 = 8

with high responsibility for accidents to the total number of drivers' samples increases with the increase in blood alcohol.

The data obtained from the questionnaire filled out voluntarily and returned, while interesting, were of no practical value for statistical analysis. One noteworthy point, however, was that the percentage of returns from drivers with little or no blood alcohol was greater than from drivers whose blood alcohol was in ranges where impairment in driving ability is said to be evident.

In each survey police records made at the time of accident contained information regarding recent changes in employment of the drivers sampled. A regression analysis of the responsibility scores was made to determine the role of blood alcohol and reported employment changes therein.

The responsibility score R for any individual driver was assumed to obey a relation of the form

$$R = B_0 + B_1X_1 + B_2X_2 + E^1$$

where X_1 = percent blood alcohol indicated by the breath sample,

X_2 = number of reported employment changes,

B_0, B_1, B_2 are constants.

E^1 = a random error term which allows for the effects of unknown sources of variation.

If $\bar{R}$ denotes the average value of R for all drivers in a survey, the value

of $\sum (R_s - \bar{R})^2$ summed over all drivers in that survey measures the total variation in the data concerning R. The amount of this variation in R which can be explained by means of the assumed dependence of R on X_1 and X_2 is a measure of the dependence of R on X_1 and X_2. The following table gives, for each survey, the amount of variation in R which can be explained by (1) dependence on X_1 and X_2, (2) dependence on X_1 alone and compares each with the amount of variation estimated as due to error.

Sources of Variation	*Amount of Variation*	(*Arbitrary Units*)
	Survey 1	Survey 2
X_1 and X_2	190	400
X_1 alone	186	400
Error	12	13

These results are based on data for 188 accident drivers in Survey 1 and 194 accident drivers in Survey 2. They agree in showing that (1) the effects of alcohol are much larger than can be attributed to error; (2) the number of employment changes is of no importance in determining responsibility score.

Summary

The practical viewpoint obtained from this survey is that small amounts of alcohol—a cocktail, a bottle of beer— taken by the average person in an hour, give an alcohol level in the blood which does not appear to impair driving ability in most persons. If, however, several cocktails or bottles of beer are consumed in about an hour's time, the alcohol content of the blood will lie in the range 0.10 - 0.15 per cent. The statistician has calculated that the hazard of accidents is approximately three times greater to drivers in this range than to drivers who are sober, when all are operating under identical driving conditions. If sufficient alcohol is comsumed—six drinks of whiskey, six cocktails or bottles of beer—in a relatively short time, an hour or so, then the blood alcohol concentration will be above 0.15 per cent; the hazard of accidents to drivers in this stage is ten-fold instead of three, as discussed above.

The percentage of accidents attributable to alcohol in the blood of drivers of motor cars involved in serious and minor accidents in an urban area proved to be approximately 10.

The number of employment changes of drivers is of no significance but the effects of blood alcohol are significant.

* * *

Reason and judgment are the qualities of a leader.

Name 1954-55 TPA Class

THE TRAFFIC Institute has announced that 39 police officers have been selected to attend the 1954-55 traffic police administration course.

Franklin M. Kreml, Institute director, said that 33 of the officers will attend the course on awards provided by the Kemper Foundation for Traffic Safety, Chicago, and six were declared eligible to attend as tuition-paying students. The Kemper Foundation is sponsored by the Lumbermens Mutual Casualty Company and the American Motorists Insurance Company.

The two-semester course in police traffic supervision—the only training of its kind offered anywhere— will begin Sept. 23, 1954, and continue through June 13, 1955. It is designed especially for executive and administrative personnel of police departments and includes more than 1,200 hours of classroom study, work projects, demonstrations, and field study trips. Four main study areas are: non-police highway transportation agencies and problems, functions of traffic police, management of police service, and general education subjects.

The 39 men chosen in nation-wide competition for the 1954-55 course were named after successfully completing a selection process which included aptitude tests, personal interviews, and consideration of such factors as the extent of the accident and congestion problem in the applicant's community and his department's plans for profitable use of his training.

The 39 men represent 20 municipal police departments in the United States, 11 state police and highway patrol organizations, the Port of New York Authority, the Quebec (city), Canada, and the Manila, P.I., police departments, and the Ministry of Interior of Taiwan (Formosa).

Members of the Institute Board of Selection which named the award winners were: Lynn H. Stockman, assistant dean, School of Commerce, Northwestern University; Carl F. Hansson, president, International Association of Chiefs of Police, and chief of police, Dallas, Tex., and W. Dean Keefer, second vice president, Lumbermens Mutual Casualty Company, representing the Kemper Foundation for Traffic Safety.

The Kemper Foundation, which has been providing funds for police officers to attend the Traffic Institute since 1936, gave sixteen $1,650 fellowships and seventeen $500 tuition scholarships for the 1954-55 class. (Four of the officers will share two fellowships and two scholarships).

Kemper Fellowship Winners

Capt. William M. Canady, Kansas City, Mo.
Sgt. Robert M. Igleburger, Dayton, O.
Sgt. Espy Hedger, Lexington, Ky.

Sgt. Herman Lederman, New York, N. Y.
Sgt. Gowan J. Duffy, New Orleans, La.
Sgt. Leonard O. Dansby, San Antonio, Tex.
Act. Sgt. Clifford N. Payne, Spokane, Wash.
Sgt. William H. Elliott, Wilmington, Del.
Ptlm. Lloyd F. Loup, LaFayette,La.
Ptlm. Byron F. Orr, Colorado State Patrol
Lt. David A. Espie, Kentucky State Police
Sgt. H. Lee Arledge, Louisiana State Police
Trooper Arthur Gordon Fralin, Massachusetts State Police
Sgt. Neil F. Deemer, Minnesota Highway Patrol
Ptlm. Shirley W. Hancock, Montana Highway Patrol*
Ptlm. Kenneth G. Talbot, Montana Highway Patrol*
Sgt. Francis J. Simonis, New York State Police**
Tech. Sgt. P. R. Vandermark, New York State Police**

Kemper Scholarship Winners

Sgt. James B. Conlisk, Jr., Chicago, Ill.
Lt. Perdue William Lawrence, Dallas, Tex.
Det. George Quinn, Quebec, Que., Canada
Lt. William H. Miller, Evanston, Ill.
Ptlm. John J. Sedletzeck, Terre Haute, Ind.
Sgt. Robert S. McDougall, Tacoma, Wash.
Lt. Joseph P. Cunnane, Philadelphia, Pa.
Lt. Sidney H. Brown, Oakland, Calif.
Sgt. Carroll I. Parfitt, South Bend, Ind.
Lt. Anthony P. Werrell, Irvington, N. J.
Capt. Oliver Tabor McDuff, Alabama Highway Patrol
Capt. Richard H. Cotter, Louisiana State Police
Ptlm. Walter P. Stecko, Connecticut State Police
Cpl. Robert M. Chiaramonte, Ohio State Highway Patrol
Lt. Earl C. York, Tennessee Department of Public Safety

Declared eligible to attend as tuition-paying students:

Sgt. Adam Z. Klimkowski, Miami, Fla.
Sgt. Edward A. Bakos, Hammond, Ind.
Lt. Arthur F. Maxwell, Port of New York Authority
Franklin Shen, Taipei, Taiwan (Formosa)
(Two members of the Manila, Philippine Islands, Police Department to be named.)

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*These men share one $1,650 fellowship and one $500 tuition scholarship.
**These men share one $1,650 fellowship and one $500 tuition scholarship.

Attention Parents:

Want to Improve Teen-Age Driving?

by

FOREST R. NOFFSINGER
Associate Editor for Education
Traffic Digest & Review

TOO MANY communities throughout the country are still not aware of the seriousness of the teen-age driving problem—or, if they are aware of it, have failed to stir themselves to any organized, aggressive, persistent attempt to arrive at a solution.

How do you become aware of the existence or seriousness of the problem? It usually comes from an accumulation of certain isolated facts. In one family, son uses the family car and returns with the fender and headlight caved in. In another family, father is keenly distressed when he discovers that son has been given a ticket for speeding. Once in a while, and all too often, some family will be shocked when they learn that daughter, out to a dance with a nice young man, has been seriously injured in an auto accident.

A community program of action cannot be based upon such isolated facts, serious as they are to the individual families involved. Nor can teen-age drivers as a whole be classed as poor or reckless drivers. Iowa Commissioner of Public Safety Pearl McMurry and Dr. A. R. Lauer of Iowa State College in a study of Iowa teen-agers found that only about half of the teen-age group had licenses and that for the teen-age group there was a lower than normal number of reported accidents when compared with other age groups. Their study showed that only a few "bad actors" were having the serious accidents. One important conclusion of their study was that the entire younger group should not be stereotyped as killers.

Sometimes in a community some four or five different groups will become aware of the problem of the teen-age driver—and each will think of some project or activity designed to improve the situation. Independently, they proceed to get their projects under way. An effective community program cannot be developed by merely putting together a group of unrelated ideas, projects, and activities even though they are all designed to produce the same result.

You can't afford to scatter your shots by using a sawed-off shotgun. You have neither the time, energy nor money to spare. You must be able to aim high-powered rifle shots direct to the causes of the inefficiencies in the teen-age driving in your community.

You can't do that without having the facts. You must start with the facts—*all* the facts related to the problem. You must know for your community the answers to such questions as:

In how many accidents are teen-agers involved as drivers?

What did the driver do that caused the accident?

Who was with the driver when the accident happened?

Was there a violation in connection with the accident? Was the teen-age driver in violation? Was it the other driver? Was it both drivers?

Where did the accident happen?

Where did the teen-age driver live?

Where was the driver going when he had the accident?

Did the teen-age driver have a previous accident record?

What type of violations are charged against the teen-age driver?

When and where do they occur?

Where was the driver going when the violation occurred?

Was the driver alone in the car at the time of the violation?

What kind of a family is the driver from?

Whose car was being driven? Own or family?

Did the driver have parents' permission to make this particular trip?

Did the driver have a license to drive?

Who trained the driver to drive and how?

Is teen-age show-off driving reported? Who are these show-offs?

All these and many more questions need to be asked and answered before you can hope to pinpoint the areas toward which your community program should be directed if it is to be effective.

Where can you get the answers? Your police department through accident investigation, through the keeping of adequate records, and through intelligent analyses of those records is in a position to get many of them for you. Your school can help with some questions. You will have to get some of the information from working committees appointed for the purpose in your own PTA organization or from other assigned groups. However you are to get them. You must have *facts* upon which to build.

There is no set pattern for a teen-age driving program. The program in any community must be based upon the facts in that community and must be tailor-made to fit the needs of that community. Tailor-making that program is your job and your responsibility—you parents and the

members of all other agencies in your community interested in the conservation of its human resources.

Several important things must be done in any community that is determined to make an all-out offensive on the inefficiencies of teen-age driving.

First, look at the school driver education program. Any effective program of driver education must do the following four things:

1. It must bring about in the minds of boys and girls:
   a. A realization of the effects of physical, mental, and emotional characteristics on drivers and pedestrians in general.
   b. A recognition of their own deficiencies which may affect their traffic practices, and
   c. A knowledge of the steps they can take to remedy or compensate for such deficiencies.
2. It must establish in the minds of boys and girls an understanding of those sound principles and practices fundamental to safety and efficiency in traffic, whether as driver or pedestrian, in Maine or California, in city or country, in daylight or dark.
3. It must provide for the establishment of such habits and the perfecting of such skills as will assure for the boy or girl, sound and safe performance as driver or pedestrian.
4. It must develop among high school youth the attitudes, appreciations and understandings essential to:
   a. The safe, sane, cooperative, sportsmanlike use of our streets and highways.
   b. The sincere acceptance of individual and group responsibility for the conservation of health and life in traffic, and
   c. The further development and improvement of traffic conditions through programs of legislation, administration, engineering, enforcement, education and personnel training.

Now if these four things are to be done effectively, you must make sure that *every* boy and *every* girl in your community receives this training, provided he or she is physically, mentally, and emotionally equipped to drive an automobile in today's traffic. In passing, it should also be noted that it is an equally important responsibility of the community's educational authorities not only to refuse to teach, but, in addition, to help prevent the licensing of any boy or girl not so equipped.

Furthermore, you must make sure that enough time is given to the teaching of driving to make it effective.

There is no subject in the high school curriculum where the old adage,

"A little learning is a dangerous thing," applies more aptly. Putting a new driver behind the wheel with inadequate supervised experience and with poorly developed attitudes toward others in traffic is dangerous business. Developing such attitudes and providing such experience takes time—lots of time—and enough time is not being given to it in the high schools of the nation.

The task of teaching driving is one in which mistakes must not be made. One mistake may cause the destruction of the entire future of one or several people. In handling a motor vehicle, split second variations in performance and slight errors in judgment may involve the lives and property of other innocent people. So, give your driving teachers enough time to do a *good* job with these new drivers. Don't sell them short!

Sure, it will cost more money. But can any one tell in dollars and cents the worth to his family, to your community, and to the nation of the life of one teen-ager? It is said that the money lost through motor vehicle accidents in one year in this country would pay for teaching 40 million persons to drive safely and efficiently!

You want to improve teen-age driving in your community. Well then, teach *all* of them to drive, give the teacher enough time to do a good job and provide enough money so that it can be done.

There is another important consideration that so often is overlooked when a community recognizes that something must be done about the teen-age driving problem.

Why is it that when adults begin to talk about teen-agers and their problems, they more often than not, ignore completely the very people they are trying to help. Do they tend to seek teen-age advice, their counsel, their desires, their thinking? They do not. They tend to classify all youth as irresponsible and reckless. But they're not. They are, as a whole, no more irresponsible and reckless than adults.

They are no different now than they were back in pioneer days when a boy or girl of 16 or 17 was considered mature and did the work and made the decisions of a man or woman. Only today, adults give them so little to do, to be responsible for. Adults just don't *think* teen-agers are capable of doing things, of helping to solve their own problems and the problems of their community. Why do adults overlook, fail to take advantage of the fresh outlook, the uninhibited thinking, the new views, the original ideas of the teen-agers in their midst?

Some years ago a driver education class in a small city was studying the need for adequate legislation in the traffic situation. They decided they would find out about the traffic ordinances of their own city. After days of looking over old records, some of them high on the dusty shelves of closets in the city hall, they finally compiled a list of the ordinances. And they found some honeys. Almost as bad as the ordinances in one

city which stated that "When two vehicles approach an intersection at the same time, each shall stop and neither shall proceed until the other has passed through the intersection."

After much study and discussion in class, a proposal was drawn up pointing out the inadequacy of the existing traffic ordinances and recommending the adoption of the Model Traffic Ordinance. A committee of the class met with the city authorities and presented their proposal. The final result was the adoption of the Model Ordinance, with adaptations, by the City Council. This is but one example of many, where teen-agers have helped in the solution of local problems.

In the belief that teen-age traffic problems can use some teen-age thinking, the director of vehicles and traffic in Washington, D. C., organized a Young People's Traffic Council. Its purpose is to advise District officials on ways to promote safe driving among teen-agers.

In New Haven, Conn., bronze pin awards are given to teen-agers who detect traffic hazards and do something about their correction.

In Muskegon County, Mich., teen-age traffic violators must face a jury of teen-agers selected from local high schools which makes up the County Juvenile Traffic Court. While the Court has no official standing, it is firmly established and the judge of probate feels that the juvenile jury fills a needed place in the court system. The scope of the jury covers traffic law violations by boys and girls who are under 17. The verdicts are informal and have no actual standing unless they are approved and applied by order of the court. Verdicts given usually range from suspension of an operator's license for a few days or weeks to writing a safety essay of 500 words. In addition, violators are required to attend the police Traffic School. Jury members are selected from the civics and government classes of the county high schools.

How about trying those kids in your community? They're bursting with desire for an opportunity to show their wares. And they'll be a big help in more ways than one.

Parents often choose to overlook a third important consideration in the improvement of teen-age driving in the community. Just ask a few questions.

With your son or daughter in the car have you done any of these things?

Have you pulled into a no-parking space or double parked while you ran into a store for a couple of minutes?

Have you ever blown your horn at a crossing pedestrian while you were making a right turn?

Have you ever speeded up to prevent another car from passing you?

Have you ever squeezed into a parking space ahead of another driver?

Have you ever jumped a traffic light a little bit?

Have you ever just slowed down instead of stopping for a stop sign?

Have you ever failed to signal for a slow down or stop or for a right or left turn?

Have you ever gone through a speed zone faster than the posted speed?

Have you ever made a right turn from the center lane?

Have you ever in effect cursed out another driver who in some way interfered with your freedom of action?

Little things, you will say, but you will agree that for years some of you have been doing some of these things and others of like character. Little things, perhaps, but they are the stuff from which accidents are made. Little things, but violations of law or of courtesy none the less. Little things, but your sons and daughters have been seeing you do them over the years since first they were able to recognize the acts of drivers.

How then do you expect them to have accident-free driving attitudes and habits? Better give your own driving practices a thorough check and start a self-improvement program. For that high school driving teacher has a tough time overcoming the instructions you have unconsciously been giving through example.

What will your teen-ager think of you when he begins to compare your driving with what he has learned in his driver education course is necessary for safe and efficient driving? Don't you want to remain a hero in the sight of your son or daughter?

In brief review, if you are really sincere in your desire you can and you must actively help all responsible agencies to join together in a program of action for your community based upon the facts as they exist; you can, and you must help expand your driver education program so all boys and girls receive a good training in driving at whatever the cost; you can and you must give the teen-agers their share of the responsibility for helping to improve their record and hold them to it; and you can and you must inspect your own driving, remove the flaws, and set a better example of safe and efficient driving for those who come after you. You dare not use the old tired worm-eaten excuse that you cannot alone change the teen-age driving habits in your community. You can! You're a member of *some* kind of a group in your community—PTA, Rotary, church, etc. And here's a product, a service, a responsibility for you to sell. Get on your feet, man. Get a drum!

* * *

A child born today has a greater chance of dying as the result of an accident than from the combined risk of pneumonia, influenza, and tuberculosis.

—*Metropolitan Life Insurance Co.*

KNOW THE LAW

by

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LIE DETECTOR AND "TRUTH SERUM" EVIDENCE

WHILE the courts of this country still reject the results of "truth compelling" devices and medicines when offered in evidence, (Note: 23 A.L.R. 2d 1308), several recent cases have suggested and even approved various applications of their use. An illustration is *People v. Jones*, 266 P. 2d 38 (Supreme Ct.-Calif.-1954), in which the defendant had been convicted of criminally molesting a child. On his trial he denied any such illegal acts and offered to prove by a psychiatrist that he was not a "sexual deviate." Because the psychiatrist had aided his examination by use of a "truth serum" (sodium pentathol) the prosecution's objection to this evidence was sustained. The Supreme Court held such exclusion to be error, saying that while the general rule excluding the results of examination of a person while subject to "truth drugs" applied in California, this is true only when the results are offered for the purpose of proving the truth or falsity of statements made by the accused. "Here the proffered evidence was not the answers of Jones to certain questions, but the interrogator's expert analysis of those answers for the purpose of determining whether Jones was a sexual deviate, that is, sexual psychopath. The inference that Jones did not commit the offenses charged was to be drawn, if at all, from the psychiatrist's opinion in regard to the sexual propensities of Jones, and not from any answers given by him while under the influence of the drug. Jones' responses were the means to an end, the end being proof of the fact that Jones was not a sexual deviate." Conviction reversed.

Likewise in *People v. Ford*, 304 N.Y. 679, 107 N.E. 2nd 595 (1952), the court had appointed two psychiatrists to examine the defendant, charged with murder, and both testified as defense witnesses that he was a psychopathic personality, incapable of premeditation or deliberation. One of the doctors had injected into the defendant a dose of sodium amytal and was permitted to tell about the effects produced by such a drug but not about his interview with the defendant while under its

influence. This was held to be error, since the doctor should have been allowed to give his opinion as to the defendant's mental status. The court carefully distinguishes its earlier decision in *People v. Forte*, 279 N.Y. 204, 18 N.E.2d 31, 119 ALR 1198 (1938), where the court had refused permission for a lie detector test of the defendant and a report to the court as to whether he was telling the truth. There the court had said that "such a mechanical method of answering that question is not yet accepted by our courts."

GENERAL RULE AND ITS EXCEPTIONS STATED

The rule and its application were well stated in *State v. Kolander*, 52 N.W.2d 458 (Minn. 1952), where the court said: "A great deal has been written on the development and reliability of the so-called lie detectors, but up to the present time the almost unanimous holding of all courts which have passed upon the question is that the results of such tests are inadmissible. The holding of the courts generally is based on the reasoning that the tests have not yet gained such standing and scientific recognition among physiological and psychological authorities as would justify courts in admitting expert testimony deduced from the discovery, development and experiments thus made . . .

"We have no doubt that the lie detector is valuable in investigation work of law enforcement agencies and may frequently lead to confessions or the discovery of facts which may ultimately lead to the solution of many crimes; but we are in accord with the rule that the lie detector has not yet attained such scientific and psychological accuracy, nor its operators such sureness of interpretation of results shown therefrom, as to justify submission thereof to a jury as evidence of the guilt or innocence of a person accused of a crime."

Also in *Leeks v. State*, 245 P.2d 764 (Okla. Cr.-1952), the court, referring to the general rule of exclusion, said: "This does not exclude the lie detector as an instrument of investigation, nor does it mean that its *use* may not be shown as a step leading up to a confession, but the *results* thereof should not be brought out by either the state or the defendant." It is held, too, that *use* of such tests may be considered by the jury along with the other evidence in determining whether a confession was freely and voluntarily given. *Leeks v. State*, supra; *Henderson v. State*, 230 P.2d 495, 23 ALR 2d 1292 (Okla Cr.-1951); *Comm. v. Jones*, 341 Pa. 541, 19 A. 2d 389 (1941); *State v. Lowry*, 163 Kans. 622, 185 P.2d 147 (1947).

REFUSAL TO TAKE TEST CANNOT BE SHOWN

In the Kolander case (supra) the court also said: "The state concedes that the results of a lie detector test would not be admissible but contends that it may nevertheless be shown that defendant refused to take such test, since such refusal is evidence of a consciousness of guilt similar to evidence of flight. With this we cannot agree."

RESULTS CANNOT BE SHOWN BY INDIRECTION

In *People v. Wochnick*, 98 Cal. App. 2d 124, 219 P. 2d 70 (1950), the results of the test were not offered, but testimony of a police officer was admitted to the effect that the defendant had been told that while subjected to a lie detector test he had shown a violent reaction when shown the murder weapon, and that when asked for an explanation of such reaction he was unable to explain it. This was held to be reversible error because the evidence of the test "was indelibly implanted in the minds of jurors and could not but have had a prejudicial effect."

It seems that such evidence cannot be made admissible even by stipulation of the parties. In *LeFevre v. State*, 246 Wis. 416, 8 N.W. 2d 288 (1943), written stipulations had been made to the effect that either the state or the defendant could use the findings of the Keeler Polygraph tests at the trial. It was held, notwithstanding such stipulations, that evidence as to the results of the tests were properly excluded when offered by the defendant.

Nor can the tests be used to "rehabilitate the credibility" of a witness, as where the party seeks to show that his witness has consented to take such a test, this in order to bolster his credibility. The court said that this would have been the same as showing the result of the test. *Kaminsky v. State*, 63 So. 2d 339, (Fla.-1953).

In *People v. Lettrich*, 413 Ill. 172, 108 N.E. 2d 488 (1952), it was held that a confession obtained by use of several lie detector tests, in connection with coercion, constituted an improper basis for conviction. In *People v. McCracken*, 39 Cal. 2d 336, 243 P. 2d 913 (1952), it was held proper to deny the defendant's request to be subjected to a truth drug test while on the witness stand. An excellent discussion of the opinions voiced by various medical journals pro and con is found in the opinion of the court in *State v. Lindemuth*, 56 N.M. 257, 243P 2d 325 (1952), where evidence offered by the defendant to show the results of psychoanalysis under sodium pentathol was held inadmissible.

In State v. Lowry, 163 Kans. 622, 185 P2d 147 (1947), the state was permitted to introduce the results of lie detector tests made on the defendant and his witnesses. The Supreme Court said: "The practical effect of the admission of this testimony was to constitute a mechanical device—as reported by the operator—a sort of witness *in absentia* on the question of the defendant's guilt or innocence. The machine itself escapes all cross examination."

SUCH EVIDENCE USUALLY OFFERED BY DEFENSE!

It is a peculiar fact, somewhat difficult of explanation, that in most cases in which such evidence has been involved, it has been offered by the defendant rather than the state. This has been true in the following:

Frye v. U.S., 293 F. 1013, 34 ALR 145 (1923); *People v. Becker*, 300 Mich. 562, 2 N.W. 2d 503, 139 ALR 1171 (1942); *State v. Pusch*, 46 N.W. 2d 508 (No. Dak.-1951); *People v. Forte*, (N.Y.) supra; *People v. Jones*, (Cal.), supra; *People v. McCracken*, (Cal.) supra; *State v. Lindemuth*, (N.M.) supra; *Peterson v. State*, 247 S.W. 2d 110 (Tex. Cr. 1951); *LeFevre v. State*, (Wis.) supra; *State v. Bohner*, 246 N.W. 314 (Wis. 1949); *People v. Ford* (N.Y.) supra; *Henderson v. State*, (Okla.) supra; *Orange v. Comm.*, 61 S.E. 2d 267, 191 Va. 423 (1950). In *State v. Cole*, 354 Mo. 181, 188 S.W. 2d 43 (1945), it was held proper to refuse defendant's motion that all witnesses in the case be subjected to lie detector tests.

* * *

Highway Transportation — Giant of U.S. Economy

According to the Brookings Institution, highway transportation as we know it in the United States is "the greatest single combination of economic activities in man's history."

It pays one-sixth of the nation's taxes, and provides over ten million jobs. Six million workers, for instance, are truck drivers. More people are employed in all branches of highway transportation than on all the nation's farms. Individual business establishments directly connected with highway transportation number over 700,000.

The people of the United States pay over $50 billions a year for highway transportation services. Motor trucks account for 15 per cent of freight ton-miles and 77 per cent of total freight tonnage hauled yearly. Highway transportation also accounts for 95 per cent of all passenger miles of travel in the United States. In some states the automobile, together with the highway system, has made the tourist industry the most important single producer of wealth.

From any point of view, highway transportation is one of the most vital parts of the American economy. It brings together, when and where there is work to be done, the people, the materials, the machines and the resources to build the things we need. It helps through the growth of its own facilities to keep the economy prosperous and growing. It is also an important arm of national defense. In the words of President Eisenhower, "Next to the manufacture of the most modern implements of war as a guarantee of peace through strength, a network of modern roads is as necessary to defense as it is to our national economy and personal safety."

—Automobile Manufacturers Association

* * *

The world is always ready to receive talent with open arms.

—Oliver Wendell Holmes

* * *

Present opportunities are not to be neglected; they rarely visit us twice.

—Voltaire

Save 1,000 Lives in Six Months!

ALMOST 1,000 lives have been saved on the nation's streets and highways in the first half of 1954, the National Safety Council has announced. June alone accounted for 250 of these.

There were 16,300 traffic deaths in the first six months of this year, the Council's tabulation revealed, as compared with 17,250 in the corresponding period of 1953—a reduction of 6 per cent.

If that percentage decrease can be maintained during the last half of the year, the Council said the year's traffic death toll will be the lowest since 1950.

However, Ned H. Dearborn, Council president, warned that the last half of the year is normally the most hazardous and accounts for the greatest proportion of deaths.

June was the sixth consecutive month to record fewer traffic deaths than the corresponding month of 1953. The June reduction was 8 per cent—significant in the Council's opinion because it reflected the first of the heavy vacation travel.

The actual toll for June was 2,850—the lowest death total for any June since 1950. There were 3,100 fatalities in June last year.

Of 46 states reporting for June, 29 had decreases in deaths, 15 had increases and two reported no change. For the six months, the number of states with increases and decreases were the same as for June.

The 29 states with decreases in deaths for six months were:

Montana	−31%	Utah	−12%
West Virginia	−27%	Ohio	−10%
Delaware	−24%	New Jersey	−10%
Washington	−22%	Kansas	−10%
South Carolina	−22%	New York	− 8%
North Dakota	−21%	Maryland	− 8%
Massachusetts	−20%	Arkansas	− 7%
Maine	−20%	New Mexico	− 7%
Virginia	−19%	Vermont	− 7%
North Carolina	−18%	Missouri	− 6%
Connecticut	−15%	Illinois	− 5%
California	−14%	Kentucky	− 5%
Indiana	−12%	Florida	− 4%
Mississippi	−12%	Pennsylvania	− 3%
		Tennessee	− 1%

Of 498 reporting cities, 199 had fewer deaths at the halfway point, 156 had more deaths and 143 reported no change. The following 24 cities with populations of more than 200,000 were among those with fewer deaths:

San Antonio, Tex.	−50%	Buffalo, N. Y.	−25%
Omaha, Neb.	−50%	Toledo, Ohio	−24%
Honolulu, Hawaii	−46%	Indianapolis, Ind.	−20%
Norfolk, Va.	−45%	Philadelphia, Pa.	−12%
Kansas City, Mo.	−42%	Chicago, Ill.	−12%
Ft. Worth, Tex.	−41%	Oklahoma City, Okla.	−10%
Portland, Ore.	−35%	New York, N. Y.	−10%
Baltimore, Md.	−35%	Detroit, Mich.	−10%
Columbus, Ohio	−33%	Cleveland, Ohio	− 9%
Cincinnati, Ohio	−31%	Pittsburgh, Pa.	− 8%
Richmond, Va.	−27%	Dayton, Ohio	− 7%
San Diego, Calif.	−26%	St. Louis, Mo.	− 2%

Of the 498 cities, 367 had no-death records in June. The three largest were Seattle, Wash. (517,500); Omaha, Neb. (251,100), and Worcester, Mass. (203,500).

For six months, 119 of the 498 cities still had perfect records, the three largest being Berkeley, Calif. (113,800); Richmond, Calif. (99,500), and Topeka, Kan. (78,800).

The three leading cities in each population group for six months, ranked according to the number of deaths per 10,000 registered vehicles, were:

	Reg. Rate
Over 1,000,000 Population	
Detroit, Mich.	3.2
Los Angeles, Calif.	3.3
Philadelphia, Pa.	3.6
750,000-1,000,000 Population	
Baltimore, Md.	2.7
San Francisco, Calif.	3.0
Washington, D. C.	3.1
500,000-750,000 Population	
Seattle, Wash.	1.8
Dallas, Tex.	2.4
Pittsburgh, Pa.	2.6
350,000-500,000 Population	
Denver, Colo.	1.4
Portland, Ore.	1.6
Columbus, Ohio	1.8
200,000-350,000 Population	
Omaha, Neb.	0.8
Honolulu, Hawaii	1.2
Oklahoma City, Okla.	1.4

	Reg. Rate
100,000-200,000 Population	
Berkeley, Calif.	0.0
Little Rock, Ark.	0.5
Flint, Mich.	0.7
50,000-100,000 Population	
Topeka, Kan.	0.0
Richmond, Calif.	0.0
East Orange, N. J.	0.0
25,000-50,000 Population	
Boise, Idaho	0.0
Palo Alto, Calif.	0.0
Billings, Mont.	0.0
10,000-25,000 Population	
Las Vegas, Nev.	0.0
Kenmore, N. Y.	0.0
Casper, Wyo.	0.0

Committee Reports Large Increase in Chemical Tests

Use of chemical tests to determine intoxication increased about 25 per cent in 1953, the National Safety Council has reported.

On the basis of information received by the Council's Committee on Tests for Intoxication, at least 464 cities of 10,000 population or more used this scientific evidence last year, as compared to 369 cities that reported such use during 1952.

The Committee also reported that the tests were used in 46 states in 1953, an increase of two from 1952.

"There has been a steady increase during the past three years," Robert G. Schmal, secretary of the Committee said, "and all present indications point to a continued increase during the next few years. We still have a long way to go before all agencies are using some type of chemical test, but much progress has been made."

The experience of all the city and state agencies that reported using tests will be contained in a publication "1953 Uses of Chemical Tests for Intoxication." This publication will be available soon from the National Safety Council, 425 N. Michigan Ave., Chicago 11.

HERE'S SUMMER BONUS FOR TD&R SUBSCRIBERS

Notice that this issue is a little fatter than usual?

That's because your *Traffic Digest & Review* bonus is "built in" this time. "Expert and Technical Help in Traffic Accident Investigation," beginning on the next page, ultimately will appear as a chapter in the complete edition of the *Traffic Accident Investigator's Manual*, still being developed. In the meantime the material is presented here as part of the Traffic Institute's continuing effort to bring you vital new information in the traffic safety field at the earliest possible time.

The current edition of the *Traffic Accident Investigator's Manual* contains 18 chapters of basic information, to which 14 chapters will be added to make up the ultimate, complete edition. Others (not all) of the 14 chapters to be added will be published in future issues of the TD&R, as they are produced.

The current edition of the *Manual*, 18 chapters, 304 pages, is available from the Traffic Institute, 1704 Judson Ave., Evanston, Ill., at $3.50 per copy. This is the most comprehensive and authentic presentation of this subject presently available under one cover.

EXPERT AND TECHNICAL HELP IN TRAFFIC ACCIDENT INVESTIGATION

Technical Aspects of Accident Investigation

51.010—Traffic accidents involve complicated vehicles often operating at high speeds. The series of events that we think of as the accident is usually crowded into a few seconds. Commonly survivors of the accident have no reliable memory of this brief period and witnesses saw only the results. Hence, the investigator, in digging out the facts and in discovering the meaning of what he observes or is told, may have a highly technical problem on his hands. Still more technical is trying to decide just how and why the driver and the vehicle behaved as they did on that road in that accident. Special skills are sometimes needed to fit the facts together. Still further difficulties arise in trying to secure solid legal proof of the events and conclusions acceptable to courts as to causes.

51.020—Traffic Accidents are of such variety and complexity that no investigator can, by himself, accumulate all of the scientific knowledge, special skills, and tools or equipment needed in any investigation. Hence, if the investigation is important enough, he must seek help from people who have what he lacks. Sometimes a whole team of specialists is needed.

A collision in Chicago between a street car and a gasoline truck resulted in the death of both drivers and 32 other people. There were no surviving eyewitnesses. In addition to regular investigators representing the police, the transit lines, and the oil company, the help of many specialists was sought. Two photographers made pictures. A civil engineer prepared a map of the track and street layout. Three doctors reported in detail on the manner and causes of deaths. A mechanical engineer studied the forces involved in the puncturing of the gasoline tanks. A fire prevention engineer reported on the performance of the tank truck safety vents. A traffic engineer reconstructed the position of the vehicles every tenth of a second before and after collision. A fleet safety engineer reviewed the operating regulations for the traffic units involved. Attorneys studied laws and ordinances not only to see what violations there had been, but also to see how laws could be improved to help prevent such disasters. All the specialists pooled their experience and contributed to the final conclusions.

When Expert Help is Needed

51.110—Problems that you cannot solve or things that you cannot do well enough by yourself suggest the need for expert help. These problems may be as simple as measuring the grade or slope of the road so that speed may be estimated from skidmarks, or as complex as determining whether the driver killed in an accident was overcome by carbon monoxide. You may be able to arrive at a correct solution to a problem, but still need expert help because your lack of formal train-

ing and experience prevents you from presenting your *opinion* in court.

51.120—Help from specialists may thus be useful at two times:

1. *During investigation*, to determine what happened and why and to make permanent records. Such help may sometimes involve much highly professional work and sometimes only a few minutes of advice or information.

2. *After the investigation*, to present facts and sometimes expert opinions in courts.

It may happen that the same specialist can help in both ways.

51.130—Well-trained investigators reduce the need for technical help. The more things you have learned to do competently in investigating accidents, the less you will have to depend upon specialists. For example, if you have learned to use a camera well enough to be sure of getting good pictures, you should require little help from photographers. Most of the matters that you might be able to handle as well as experts cannot be picked up simply by experience in investigating accidents. For most such abilities you must have some special training or study from books or in classes, as well as practice and experience. For example, you might investigate a great many accidents without coming to know the meanings of marks commonly left on the pavement and the difference between them—the prints, skidmarks, scuffs, scratches and gouges—without some special instruction about them.

51.140—Do not depend on experts make up for poor investigation. Ma times when experts are called in co nection with trials arising out of acc dents, they are needed only to wo out something that would have be fairly easy for the investigator to at the scene of the accident.

In a fatal accident on a curve, the inves gator believed that the dead driver was fault. Because he saw no enforcement acti to take, he did not bother to spend fi minutes measuring the skidmarks or eve half a minute stepping them off. On th witness stand he acknowledged that he di not know how long the marks shown in th photographs were. Two photogrammetrist had to be employed at a cost of more tha a thousand dollars to compute the length o the marks trigonometrically from the orig inal photographic negative. See Exhibit 51-

Repeatedly experts are asked to give *opinion* as to the slipperiness of paving from descrip tions or pictures, when an investigator coul have made test skids at the scene to measur slipperiness more accurately and less ex pensively. See 42.210.

Traffic engineers often have to be brought in to testify as to the position and condition of signs or other control devices at the scene of an accident, because the investigator failed to examine them himself at the time.

51.150—Some experts can, indeed, do much to patch up poor investigations, but more often they are helpless in interpreting available facts because some vital information is missing.

A series of excellent photographs of vehicles at the scene of a three-car accident in a snowstorm enabled engineers to determine beyond doubt which cars had first collided head on and how the third car had become involved. But the experts could not tell the one thing that everybody wanted to know—which car was on the wrong side of the road. Center-

Exhibit 51-1. Photogrammetry was required to determine from this one picture how far the truck slid from A to B, because this was not determined at the time.

line, edges of the paving, and shoulders were all smoothly covered with snow. The investigator, believing that the photographs would show everything, had not taken the trouble to measure and locate the final positions of the vehicles with respect to any part of the roadway. See Exhibit 51-2.

51.160—Do not expect too much of an expert. He can help you but he cannot manufacture facts. The more and better information you get, the more he has to work on. He needs, above all, careful observations and measurements, particularly of short-lived evidence such as the final positions of vehicles.

51.170—Specialists can help in many ways. They can help in *getting the facts*, from identifying marks on pavements to analyzing breath samples for alcoholic content. They can help in *recording facts* by taking shorthand notes or photographs. They can apply the principles of mechanics to the behavior of vehicles to *figure out what happened.* and legal experts—attorneys—are usually depended upon for *handling the case in court.* The same technician may be able to do several things—for example, determine the alcohol content of the blood and explain what that means in terms of impairment of driving ability.

51.180—Expert help is practical only in important accidents because of the time and expense involved. Specialists usually expect to be paid for their services, and, in general, such expenditure as is required is warranted only when important litigation, such as negligent homicide trials or very large claims for damage due to negligence, results from the accident.

Experts and Technicians

51.210—Knowledge, skill, or experience is what makes the specialist useful, either for helping with the investigation or in subsequent testimony in court. With photographers and court reporters, skill necessary to make the records wanted is what counts. Expert

Exhibit 51-2. Experts cannot supply facts that investigators fail to get. From this and other photographs, the direction of travel, angles of collision, and relative speeds of three vehicles involved could be worked out by engineers. But which car was on the wrong side could not be determined because nobody located the edge of the snow-covered road with respect to the final positions of the vehicles.

testimony, however, is the opinion of a witness skilled in a particular art, trade, or profession, or possessed of special knowledge derived from education or experience not within the range of common experience, education, or knowledge. In scientific fields, experts are usually sought among graduates from recognized colleges and universities or the membership of professional societies. People who have had unusual experience in a certain field, who have conducted experiments, written books on, or given courses in a subject may be considered expert.

51.220—Experience alone does not necessarily make a reliable expert. The fact that a man has driven a car hundreds of thousands of miles does not equip him to explain how a car behaves in collision. It does not even mean that he has a clear understanding of the difference between good and bad driving practices. Because a man, an accident investigator, for example, frequently has occasion to step off distances, does not mean that his measurements made that way are particularly accurate. He may have been making the same mistake in such measurements for years. It takes special training and experience to step off distances well.

51.230—Certain kinds of technicians,

such as photographers and surveyors, are to be found in almost every city. On the other hand, some scientific experts specialize in very narrow fields such as interpretation of tests for intoxication or unusual skidmark patterns, and there may be less than a dozen people in the whole country really well qualified to deal with certain questions that come up in connection with traffic accidents.

51.240—The kind and quality of technician or specialist needed depends on what is expected of him. If a court case is important enough, you may want the best expert in the country if for no other reason than the prestige that goes with his name. On the other hand, a police officer with a modest amount of special training may do very well for many common problems such as the usual cases of intoxication, estimation of speeds from simple skidmarks, and distances or position from which traffic control devices are visible. Don't use more exceptional experts than you need for the help you want. To use a big hammer to drive a little nail is an expensive waste of talent.

51.245—Plan in advance. If you regularly investigate accidents, don't wait until you need technical help to begin thinking where you will find it. Learn what specialists are available in your own organization and in your own community. Make the acquaintance of those who are most likely to be needed on short notice, especially photographers, doctors who may be needed to take blood samples or examine the injured, and stenographers who can take formal written statements. Arouse the interest of these people in what you are trying to do so that they will be not merely willing, but eager to help. Often people who can qualify as experts are to be found connected with hospitals or colleges. If you work in a small community where specialists are unavailable, you can often find them in county or state departments or institutions, or these organizations can help you locate the people you need. See 51.910.

51.250—Arranging for the help of specialists. Your department may have certain policies regarding the use of experts. Do not make any arrangements for the help of specialists unless you are sure of these policies, particularly with respect to payment. There may be standing arrangements with specialists such as photographers, stenographers, surveyors, and attorneys. State and municipal employees such as traffic and highway engineers will usually consider occasional assistance to police and others as part of their jobs. Many citizens will also be willing to give time and talent to helping with accident investigation as a public or friendly service, especially professors, doctors, and engineers. Do not expect to get such voluntary help frequently or if it involves more than a few hours of work.

51.260—Doctors may, under certain conditions, furnish statements regarding injuries to persons whom they have treated, but generally what ails a doctor's patient is a confidential matter between them. Mechanics are accustomed to supplying information about

vehicles they have examined or repaired.

51.270—Expect and arrange to pay for regular professional services of photographers, surveyors, chemists and such people, particularly when they use supplies or special equipment. The charges for such services are fairly well established by custom. Recognized authorities in such professions as medicine, physics, and chemistry charge high fees, sometimes several hundred dollars a day, particularly if hours must be spent in laboratory work, calculations, or travel, or when they have to testify in court. In all cases, have an understanding about how much the charges will be before work is begun. Such an understanding will avoid unpleasant disagreements later.

51.275—Don't waste the time of experts. Do not ask them to stand by for you any more than is absolutely necessary. Everybody is irked by delays, especially those that seem to be unnecessary. For witnesses testifying in court some delays are inevitable, but explain this, and let it be known that you are doing everything you can to avoid delays. If an expert is to furnish you an opinion, find out what facts he needs and get them for him. He will lose interest fast if he has to spend time trying to find out what you expect of him, or unsuccessfully trying to get the facts he needs from you. Be sure to tell technicians *exactly* what you want them to measure, photograph, or record so that they will not have to waste time doing things over again, and lose patience in the process.

51.280—Specialists as witnesses. A specialist may testify in one or both of two different ways in court.

1. *As to what he saw or did.* Such testimony is like the reports of any eyewitness. It is a telling of facts. Thus an engineer can testify as to what measurements he made or a doctor can tell what injuries he found when he examined a person hurt in an accident.

2. *As to his opinion or conclusions.* Such testimony must be based on facts which have been introduced into evidence. It must concern matters within the field of the specialist's special knowledge and which are not matters of common knowledge.

51.285—If a specialist has information about the accident based on his own observations he may, of course, be subpoenaed like any eyewitness. He must then appear in court to testify. However, if he is merely to give an expert opinion based on facts presented to him, he cannot be compelled to testify. He must usually be persuaded to do so, ordinarily by payment of a fee. Really qualified scientists and technical specialists are sometimes very reluctant to go on the witness stand as experts, because they may be subjected to cross-examination. To offer an opinion or conclusion, the specialist must be accepted as an expert by the court. This usually means having the qualifications mentioned in 51.280.

51.290—There are always some risks in using an expert witness. He may

confuse the jury by using unfamiliar words or making his explanation too complicated. By showing too much assurance or interest, he may give the impression that his opinions are influenced by whoever is paying him. Under cross-examination, he may be made to look foolish if he is asked for opinions on technical matters that he has not studied. Sometimes he may be confronted by another expert who offers conflicting opinions or opinions which seem to be conflicting. However, the responsibility of putting an expert on the stand as a witness is usually not the original investigator's. By the time a traffic accident has reached a court, the legal expert has taken over and he decides whether the expert and his testimony will be effective before a jury.

Fact-Finding Specialists

51.130—Doctors are probably the most commonly used professional participants in accident investigation. They examine the injured and record the extent of injuries. They are usually depended upon for pronouncing a person dead and reporting the cause of death. In some cases this may be a very technical matter—for example, in determining whether the accident caused the death, or death or unconsciousness caused the accident. Doctors are usually the persons who take blood samples for tests for alcohol, carbon monixide, of other substances which may have contributed to an accident. Hospital interns, trained nurses, biochemists, and laboratory technicians also may take blood samples. As a witness, a doctor may testify as to what he discovered upon examination.

51.315—Doctors also may give expert opinions and are frequently asked to do so in court. They may testify as to how they believe injuries to have been received, the probability of death or permanent disability as a result of them, and the possible duration and cost of treatment.

51.320—Coroners are public officers, generally elected, whose duty is to inquire into the causes of any deaths within their respective jurisdictions which occur suddenly, through violence or under circumstances that raise suspicion. Such inquiries are called coroner's inquests. In this inquiry, a coroner is assisted by a jury called for the purpose of discovering whether a death has been brought about by any criminal act. The coroner may not be much help as an expert, because he usually lacks scientific training and has to arrange for doctors to examine the deceased. The coroner's report, however, is the official statement as to cause of death and must be considered in completing the official report of an accident. The coroner's report is ordinarily not admissible in court to show the cause of death. Whoever actually examined the deceased must testify.

51.325—Medical examiners are employed in some places to study the causes of violent or accidental death. They are usually pathologists who work with or for coroners. They are highly competent to testify on causes of death.

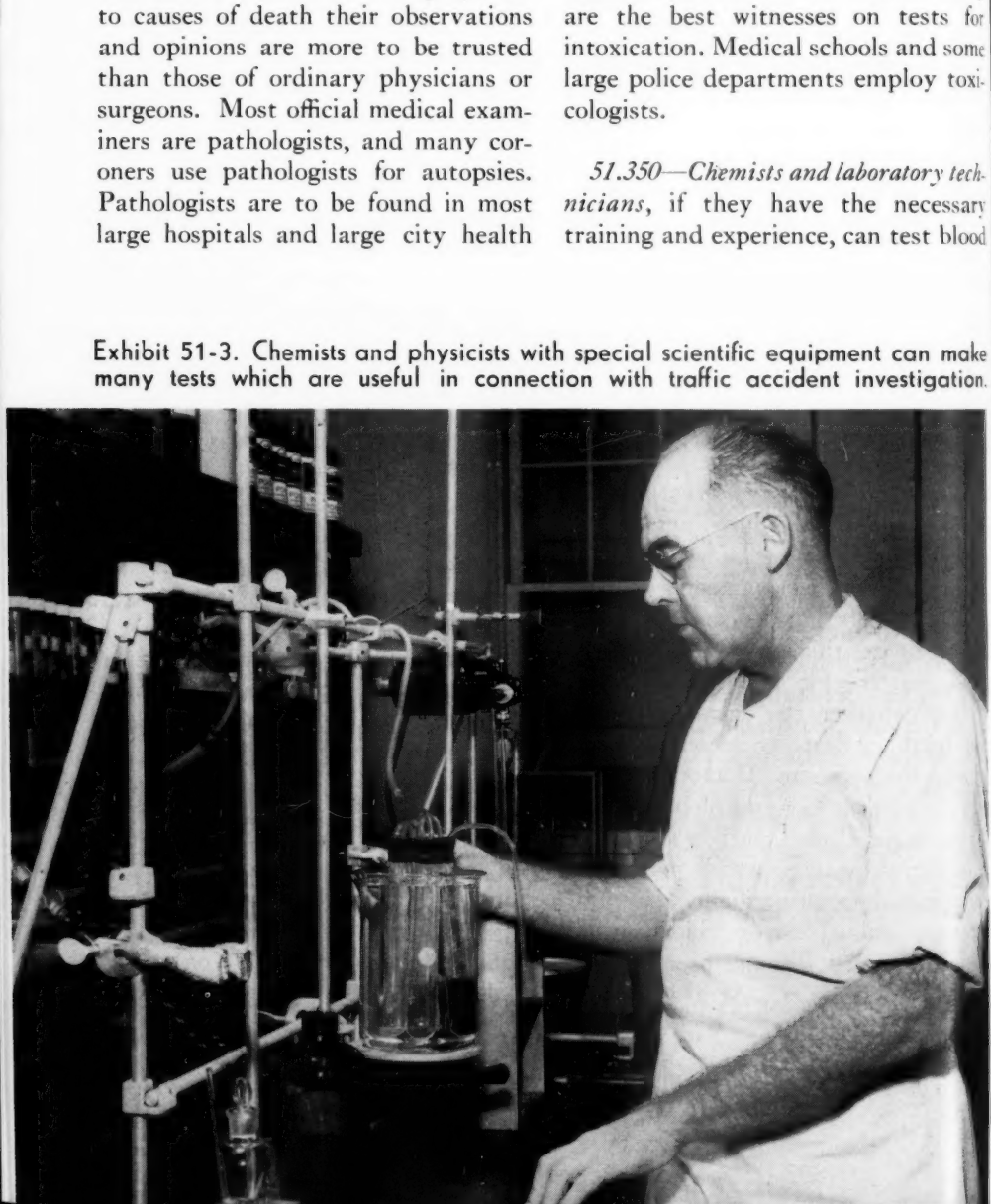
51.330—Undertakers and embalmers are sometimes called upon to report on injuries they observed in handling deceased persons. They are not qualified as expert witnesses on causes of death.

51.340—Pathologists are doctors who specialize in examining parts of living or dead people to determine the causes and extent of diseases or injury. As to causes of death their observations and opinions are more to be trusted than those of ordinary physicians or surgeons. Most official medical examiners are pathologists, and many coroners use pathologists for autopsies. Pathologists are to be found in most large hospitals and large city health departments, and in all medical colleges. Few are practicing physicians.

51.345—Toxicologists are doctors or biochemists who specialize in the effects of poisons. Among such poisons are alcohol and carbon monoxide. Most toxicologists are qualified to testify as experts as to the impairment produced by certain concentrations of alcohol or carbon monoxide in the blood. They are the best witnesses on tests for intoxication. Medical schools and some large police departments employ toxicologists.

51.350—Chemists and laboratory technicians, if they have the necessary training and experience, can test blood

Exhibit 51-3. Chemists and physicists with special scientific equipment can make many tests which are useful in connection with traffic accident investigation.



for alcohol or carbon monoxide, and breath or urine for alcohol. They are qualified to testify as to the results of their tests, but not always as to the meaning of the results. Some of them are also well qualified because of special study and experience to give expert opinion as to the effects on drivers or pedestrians of various concentrations of alcohol in the blood.

51.355—Chemists and physicists may do other laboratory work important for accident investigation, especially in hit-and-run cases. They can match or identify paint, fabrics, glass, metal, and other substances. See 32.252 to 35.270. In a proper case, they can testify as to their findings.

51.360—Mechanics and repairmen examine and describe damage to vehicles and tires. They do for cars about the same sort of thing that doctors do for people, except that they are likely to be less precise and accurate because they lack the scientific training. Mechanics vary greatly in ability. Most can tell what they did in towing a vehicle from the scene of an accident and in repairing it. They can testify as to the extent and cost of repairs when that question is material. Make sure that the repairs reported do not include those for unrepaired damage to the vehicle in a previous accident, or other mechanical work. A mechanic is often a disappointing source of observation as to details at the scene of an accident or condition of a vehicle, especially if he did no repair. Often he cannot tell whether damage was done by an accident, previous to it, or subsequently in removing the vehicle from the scene, although close observation would usually have permitted such determination. Some mechanics, however, are competent observers and may even qualify as experts to give an opinion as to failure of some part of a vehicle, such as tires or brakes, They may be competent to say whether such failure caused the accident or the collision created the failure.

51.365—Mechanics and automobile dealers are rarely qualified to estimate speed from skidmarks or even, for that matter, to determine distance in which brakes can stop a vehicle. Most have not made and measured experimental skids and studied the laws of mechanics which relate speed to sliding or braking distance. A mechanic may have repaired brakes and knows about their mechanical condition, but it does not follow that he is able to determine whether a vehicle with those brakes and a particular load will be able to stop within the legal or any other given distance.

51.370—Automotive engineers specialize in the design and testing of vehicles and their parts, such as tires and headlights. For the most part they are employed by large manufacturers, although some are to be found in large engineering schools. Some are not permitted by employers to serve as experts in accident investigations. Others are reluctant to do so because of their professional connection with automobile manufacturers. Such engineers are likely to be highly specialized, with an extremely thorough knowledge of some part of the vehicle. They can

make observations as to the mechanical and constructive details, condition and damage to vehicles. They are especially helpful in interpretation of such things as the loading of trucks beyond capacity and the effect on performance of rebuilding or modifying trucks and other vehicles. They can give expert opinions on the adequacy of design and probable behavior of vehicles in collision. Some can estimate speeds from damage to vehicles with reasonable accuracy, which may help you in analyzing the accident but which is not usually admissible as evidence in court.

51.380—Highway and traffic engineers, usually employed by states, cities, or toll-road authorities but sometimes available as private consultants, know about road widths, grades, curves, superelevation, character of surfaces, strength of bridges or guard rails, design and placement of traffic control devices, sight distances, and such things. They can report on conditions at the scene of an accident. Often they have maps or other data in their files which make surveys at the scene of an accident easier or unnecessary. They may have records that show what, if anything, has been done to change the conditions at the scene between the time of an accident and the time of later observations or photographs. Such changes might be repairs to guard rails, resurfacing of pavements, painting of center lines, and erection of signs. Some highway and traffic engineers can qualify as experts on critical speeds on curves and estimation of speeds from skidmarks, but many specialize in some field such as bridge design or traffic signals and are not competent expert witnesses outside of these fields.

Recording and Presenting Information

51.410—Many specialists, such as doctors and engineers, who can make technical observations, also make any necessary written report, diagram, or other record of their own observations. There are, however, certain technicians, such as stenographers and photographers, whose main task in accident investigation is to record and present information. Such a person may testify in court only to the fact that he made the record and that it is a true and accurate representation of what he heard or saw and that nobody has had a chance to change or modify it since he made the record. Such people are technicians rather than scientists.

51.420—Stenographers are very commonly used for recording statements of witnesses. Ordinary business or police stenographers are usually satisfactory for the purpose, but those who specialize in court and legal reporting are the most skillful and reliable. In larger cities there are companies which will supply the services of court reporters. Make sure that the original notes are not thrown away after they are typed out, until all possible litigation arising from the accident is finished. Sometimes stenographers are asked to produce such original notes in court.

51.425—Mechanical recording of statements is being used more and more. Wire and tape recorders are

generally best, but dictating machines can also be used. Such transcription in recording statements is comparable to photography in recording scenes. It has the advantage that, with the proper equipment, a relatively little training will permit you to make a highly accurate record. Skilled transcription is required, of course. An advantage is that the record need not be typed out until there is need for a written copy. Keep the original tape or other record after the statement has been transcribed, just as you would stenographic notes.

51.430—Commercial photographers are generally employed to make pictures of an accident if the investigator cannot do so. This kind of photography is discussed in 44.120 to 44.125. Often the investigator takes the pictures but a photographic studio does the developing, printing, and enlarging necessary. In this case, the continuity of possession of the film must be established, as described in 44.740. Whoever possesses the film may be asked to testify as to his part in producing the picture, to guarantee that there has been no tampering with film or prints.

51.440—Scientific photographers have special training and equipment for medical and technical photography. They are usually connected with crime laboratories or hospitals. Their main contribution to accident investigation is to make detailed pictures of physical evidence in accidents, described in 35.250, 35.254, 35.268, and 35.270.

51.445—Aerial photographers are used mainly for taking pictures of accident scenes from an airplane, for use in court. The special techniques of aerial surveyors are rarely needed and, for most purposes, a good commercial photographer can get satisfactory aerial photographs from a chartered plane, usually at less cost.

51.450—Surveyors make maps of locations. They are especially useful when curves, grades, and superelevation are important. Often the state, county, or city has good maps of highways already prepared, and the surveyor only has to locate the scene of the accident and to check to see that the map accurately represents things as he knows them to be. Be careful to ask the surveyor to show only the physical conditions as they were when he surveyed for the map. That is usually quite some time after the accident. If he shows the position of the collision, his map may be thrown out as representing on his map something he did not see. If there are gouges or tire marks on the pavement at the time he makes the survey, have him locate and show them. He can also locate permanent landmarks which will help identify locations shown by photographs and described by witnesses. To qualify most effectively in presenting his map in court, the surveyor should be licensed in the state. The surveyor should keep his original field notes for the same reason that a stenographer does.

51.455—An investigator competent to make measurements for diagrams as described in 41.410 to 41.685 will rarely need the help of a surveyor,

except for the additional prestige of having a surveyor testify in court.

51.460—Draftsmen draw maps and scale diagrams. Surveyors are often their own draftsmen. Sometimes draftsmen work from surveyor's or investigator's field notes. Draftsmen should have some special training in mechanical drawing, but it does not have to be extensive. Their work is especially important in making large-scale maps for use in courts. They may testify in court that the drawings they made are true representations of the field notes, but it is usually better to have the surveyor or investigator say that the drawing was made under his direction, and certify himself that it is a true representation of his notes. If a map is to be used in court, suggest to the draftsman that he make the lines much heavier than is usually done in map drawing, and that he color in the shoulder and adjacent land so that the map will be easier to understand.

51.470—Model makers can make scale models of a location with movable vehicles to represent those in an accident. Sometimes a surveyor or draftsman can do this well enough, although to do a nice job requires some special skill and experience. Model makers are likely to be found in large architectural offices. Models are very expensive and are, therefore, warranted only in the most important court cases. If ready-made toy cars are to be used on the model to illustrate position of vehicles in an accident, be sure that the model is made to the same scale as the cars and that the cars are in exact proportion. See Exhibit 51-4. Toy trucks are commonly rather small compared to corresponding toy cars, and are likely to be wider and lower in proportion to length than real trucks.

Analysis—Deciding What Happened and Why

51.510—With facts gathered and recorded, experts can sometimes help in figuring out what the facts mean, that is, how the accident must have happened to make all of the facts possible. The need for special help occurs most often when there are no witnesses or where the stories told by witnesses are greatly different. Some of the experts already mentioned may be of help in this matter.

51.520—Engineers and physicists are trained in the basic principles of mechanics. These principles include the fundamental laws of motion which describe acceleration, deceleration, momentum, and certain laws of energy as it relates to velocity and friction. Application of these laws to vehicle damage, the character of roadway surfaces, and the grade and alignment of the road enable the expert to come to certain conclusions as to what must have happened and what could or could not have happened. The accuracy of the conclusions depends on the accuracy of the facts and how closely the actual situation corresponds to scientific theory. Hence, the expert must not only form an opinion, but he must also have a good idea of how accurate this opinion is. Engineers and physicists are often asked to estimate

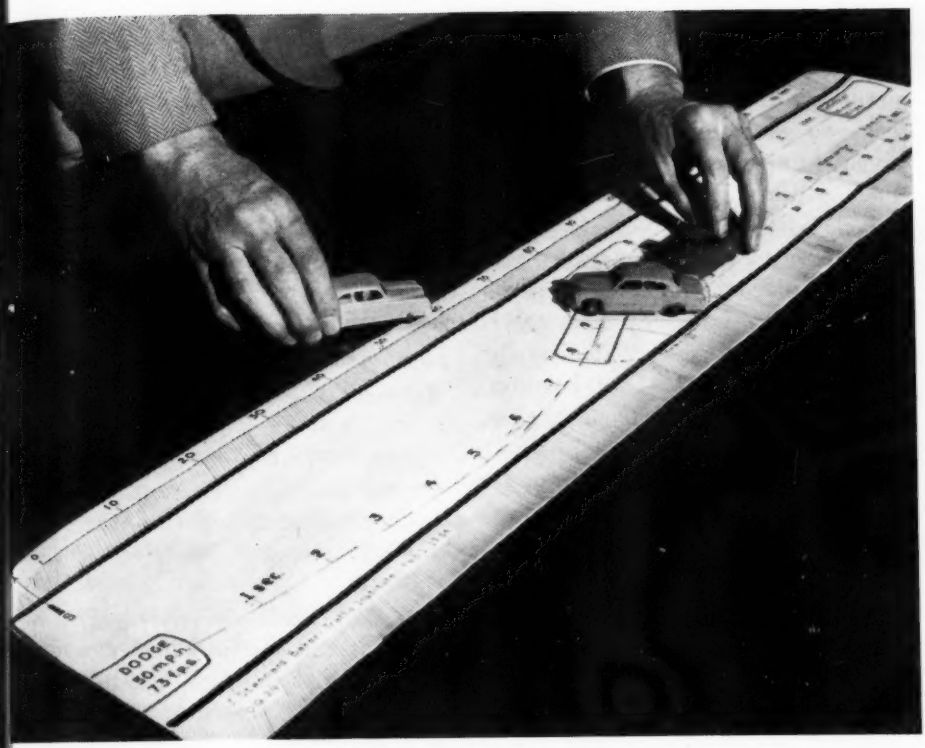


Exhibit 51-4. Diagram made to scale of model cars to show engineer's reconstruction of an accident. This is a useful device for courtroom presentation.

speeds related to distance covered in sliding to a stop. They may also figure out how fast a car can take a certain curve without sliding. See 52.510 to 52.560 and 52.810 to 52.850. Specially trained policemen can also do this in simple cases. However, experts are usually necessary to present opinions based on these calculations in court. High school physics instructors who are familiar with the literature on the subject and have made experiments in sliding vehicles to a stop have qualified as experts in such cases.

51.530—When skidmarks become more complicated and collisions involve much damage, or when spins, vaults, falls, or rolls are involved, the application of basic principles becomes more difficult. Experts capable of analyzing successfully the behavior of vehicles under these circumstances are more difficult to find, and the time required for them to work out problems is greater. There are only a few people in the country who have much experience in such things. Many have had the necessary theoretical background, but not many have had special training or practical experience in applying it to traffic accidents to qualify them as experts.

51.540—Photogrammetrists deter-

mine actual distances between objects from the relation of the objects in pictures. On a map of the roadway they can accurately place vehicles or pavement marks shown in pictures. It is a slow and painstaking undertaking and therefore expensive. Often the job can be done well enough by trial-and-error placing of models or patterns on the diagram by any person who will take some real care in doing it. Many surveyors and civil engineers can do a creditable job of photogrammetry by graphical methods if the photographs are from the proper angles and a high degree of accuracy is not required. Hence, professional photogrammetrists are called upon only when the case is very important.

51.550—The need for any kind of photogrammetric work generally means the investigator failed to make some important measurements. If a photograph can be had of a scene or of damaged vehicles, measurements could almost always have been made. Measurements are usually more accurate, always quicker, and cheaper.

Assistance in Preparation for Trial

51.610—*Attorneys are the legal experts* to be used in evaluating evidence of law violations or negligence in connection with accidents. If an important court case arises from an accident, attorneys take charge of its preparation and presentation. They may call in experts or ask investigators to try to dig up additional facts. They also evaluate the testimony of witnesses.

51.620—Not all attorneys are ab and willing to handle traffic accide cases. In cases involving charges law violation, the district attorney some other government official pros cutes for the state. When the ca involves civil liability or damages, loc attorneys who specialize in such wo are sought to represent the plaint and defendant.

References

51.910—*Lists of the names of exper* are not available. There is apparentl no organization with an interest i publishing such a list.

51.920—*Technical references* to th methods and special knowledge of ex perts and technicians are much to numerous to be listed here. They ca be found in medical, legal, and tech nical libraries. A few, however, migh be mentioned because of their specia application to traffic accidents.

O'HARA, C. E., AND OSTERBURG, J. W. *An Introduction to Criminalistics.* 1949, 72 pages. The MacMillan Company, New York City. $10.00. *Chapter 26, Chemical Tests for Intoxication; Chapter 30, Detection of Carbon Monoxide and Other Gases; Chapter 43, Color Analysis and the Spectrophotometer.*

FORRESTER, GLENN C., *Use of Chemical Tests in Traffic Law Enforcement.* 1950, 91 pages. Charles C. Thomas, Springfield, Ill. $2.00. *Describes operation of Intoximeter and some legal aspects of tests for intoxication.*

BREED, CHARLES B., AND HOSMER, GEORGE L., *Higher Surveying,* 6th Edition, 1947, 674 pages. Van Nostrand Co., Inc., 250 Fourth Ave., New York 3, N. Y. $4.50. *Chapter 7, Ground Photogrammetry.*

Chemical Tests Come of Age

The staff of the Legal Division of the Traffic Institute for the past several years has made a special project of tracking down all reported court cases involving chemical tests to determine alcoholic influence. Through this constant research, plus information received from others in the field who know of the Institute's special interest in the subject, a complete list of cases reported in the state and federal court reports has been compiled. They now amount to an even 100.

Eleven of these decisions are in civil actions, nine being opinions by courts of appellate jurisdiction and two by courts of original jurisdiction. Eighty-nine are in criminal actions in which the defendants have been charged with crimes where the use of alcoholic liquor has been an issue—86 of the opinions by courts of appellate jurisdiction and three by trial courts.

An analysis of all these cases shows that a well delineated but firm and substantial foundation has been built by case law for the use of chemical tests to determine alcoholic influence and the introduction of evidence concerning the results thereof according to established rules of evidence in subsequent litigation. The cases are contained in the court reports of 24 states, the District of Columbia, and the federal jurisdiction.

It is interesting to note that only two of the nine civil cases decided by courts of appellate jurisdiction were reversed and that in the 86 criminal cases, only 11 judgments of conviction were reversed. Reasons for reversal are as follows:

Civil	
Faulty instructions to jury	1
Failure to properly identify specimen analyzed	1
Criminal	
Violation of defendant's privilege against self-incrimination	1
Violation of defendant's rights concerning search and seizure	1
Failure to properly identify specimen analyzed	2
Failure to prove proper analysis of specimen	2
Failure to show expert witness to be qualified	2
Failure to prove test method generally recognized as reliable	1
Failure to prove by expert witness that alcoholic content of specimen sufficient to cause intoxication	1
Specimen not obtained within statutory time limits	1
Faulty instructions to jury	1

(Note: One criminal case was reversed for two of the above reasons.)

* * *

The humblest individual exerts some influence, either for good or evil, upon others.

—*Henry Ward Beecher*

University of Michigan
General Library
Ann Arbor, Michigan RD

TRAINING CALENDAR

(*All courses will be conducted at the Traffic Institute, Evanston, Ill., unless otherwise indicated.*)

Sept. 8-10—Traffic Court Conference (*Conducted with the American Bar Association*), Vanderbilt University, Nashville, Tenn.

Sept. 13-24—Post Licensing Control and Driver Improvement (*Conducted for the American Association of Motor Vehicle Administrators*), University of California, San Francisco.

Sept. 13-Oct. 1—Police Traffic Training Course.

Sept. 15-17—Traffic Safety Clinic for Newspapermen.

Sept. 20-Oct. 15—Military Vehicle Safety and Traffic Regulations (*for U.S. Army.*)

Sept. 23—Opening session, 1954-55 Traffic Police Administration Training Program.

Oct. 4-15—Post Licensing Control and Driver Improvement (*for AAMVA*). Northeastern University, Boston, Mass.

Oct 4-22—Accident Investigation—Administration and Techniques.

Oct. 11-15—Traffic Court Conference (*Conducted with the ABA*), School of Law, Northwestern University, Chicago.

Oct. 14-16—Conference for Traffic Institute TPA graduates.

Oct. 18-Nov. 5—Traffic Law Enforcement.

Nov. 1-12—Post Licensing Control and Driver Improvement (*for AAMVA*), University of Alabama, Tuscaloosa, Ala.

Nov. 8-10—Traffic Court Conference (*Conducted with ABA*), University of Texas, Austin, Tex.

Nov. 8-24—Traffic Law for Police.

Nov. 22-24—Traffic Court Conference (*Conducted with ABA*), Indianapolis, Ind.

Nov. 29-Dec. 10—Traffic Control—Devices and Methods for Police.

Nov. 29-Dec. 10—Post Licensing Control and Driver Improvement (*for AAMVA*).

Dec. 13-18—Chemical Tests for Intoxication.

Jan. 17-Feb. 14—Police Traffic Records.